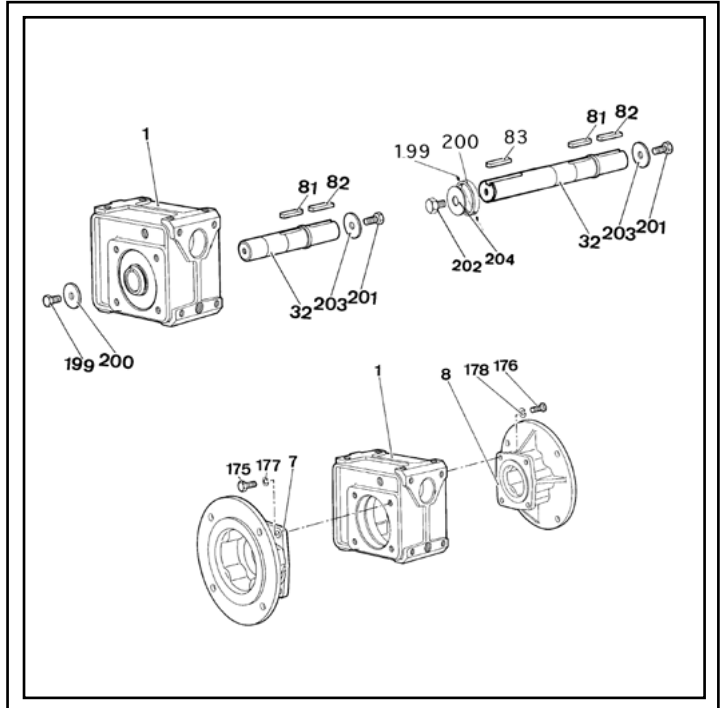
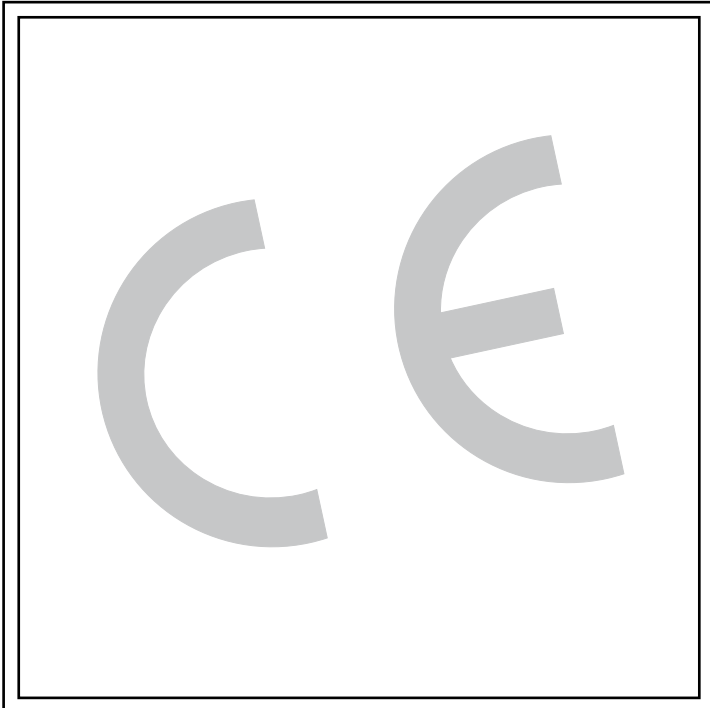




25

en



Mb 3101, Mb 2000, Mb IA(W)

Drive systems

Maintenance

Mb 3101, Mb 2000, Mb IA(W)

Drive systems

**This document complements the general instructions ref. 2557 (recommendations),
ref. 3711 (ATEX II 2D, II 3D specific recommendations) and the installation instructions ref. 2910.**

NOTE

LEROY-SOMER reserves the right to modify the characteristics of its products at any time in order to incorporate the latest technological developments. The information contained in this document may therefore be changed without notice.

LEROY-SOMER gives no contractual guarantee whatsoever concerning the information published in this document and cannot be held responsible for any errors it may contain, nor for any damage resulting from its use.

CAUTION



The specifications, instructions and descriptions are for standard operation. They do not take account of structural variants or special adaptations. Failure to comply with these recommendations may lead to premature deterioration of the gearbox and voiding of the manufacturer's guarantee.

Despite all the care taken in the manufacture and checking of this equipment, LEROY-SOMER cannot guarantee that lubricant will not escape during the product's lifetime. If slight leaks could have serious consequences for the safety of people and property, the installer and user should take all necessary precautions to avoid such consequences.

CONTENTS

1 - HOW TO ORDER	11
2 - MAINTENANCE, OIL CHANGE	11
3 - EXPLODED VIEWS, PARTS LISTS	11
3.1 - Output shaft kits L or R or LR	11
3.2 - Foot mounting kit	11
3.3 - Torque arm kit	11
3.4 - Exploded view of Multibloc	12
3.5 - Parts list for Multibloc 3101, 22 to 26	12
3.6 - Parts list for AP Mb 22 to Mb 26	12
3.7 - Parts list for BAR Mb 22 to Mb 26	12
3.8 - Output flange kit Mb 3101, Mb 22 to 25	12
3.9 - Input flange kit Mb 22 to 26	12
3.10 - Primary maintenance parts	12
3.11 - LS (ES) motor: frame size 71 to 132	13
3.12 - FLS (ES, IA, IAW) motor: frame size 80 to 132	13
4 - Mb IA, IAW	14
4.1 - Exploded view of Mb IA 31, Mb IA 22 to MbIA 25	14
4.2 - Parts list for Mb IA	14
4.3 - Torque arm kit	14
4.4 - Torque arm kit with sealing cartridge	14
4.5 - Sealing cartridge kit	14
4.6 - Hollow shaft protection kit	15
4.7 - Mounting the cylindrical hollow shaft with the shaft of the driven machine	15

Mb 3101, Mb 2000, Mb IA(W)

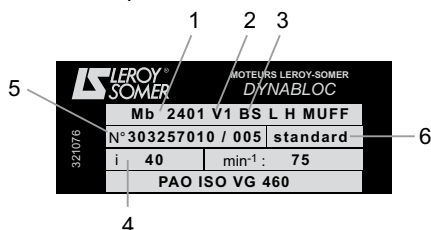
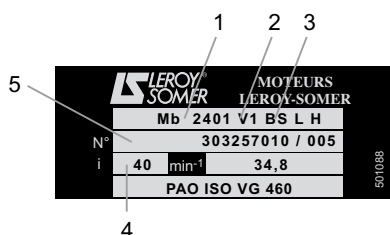
Drive systems

1 - HOW TO ORDER

a) from the gearbox nameplate :

When ordering, please indicate:

- 1 - gearbox type: **2401** ;
 - 2 - operating position: **V1** ;
 - 3 - form: **NU, NS, BSL, BDL** ;
 - 4 - exact reduction: **40** ;
 - 5 - manufacturing number ;
 - 6 - play: **standard** (Dynabloc)
- number and description of spare part (for the slow speed shaft, please specify the dimensions) ;
- type, number of poles, power and FF (B5) or FT (B14) flange of the motor (refer to the nameplates).



b) from the appropriate part list:

- part description and item number.

c) where a motor is fitted to the gearbox, from the motor nameplate:

(for the motor : see the corresponding manual)

- motor type ;
- No. of poles (or speed in min⁻¹) ;
- power in kW.

2 - MAINTENANCE, OIL CHANGE

⚠ All the fixing screws must be tightened up to 70% of their yield strength.

Preventive maintenance visit

- Check regularly that the recommendations concerning mechanical and electrical installation are still complied with.
- Lubrication: refer to corresponding documents.
- If the gearbox is fitted with a breather plug, make sure that the vent hole of the plug is not obstructed.
- Inspect the seals.
- Clean the ventilation louvres of the motor.
- Control the air gap of brake motors.

Oil change (Mb 22 to Mb 26xx)

We recommend that the PAO ISO VG 460 oil is changed according to the operating temperature in continuous operation:

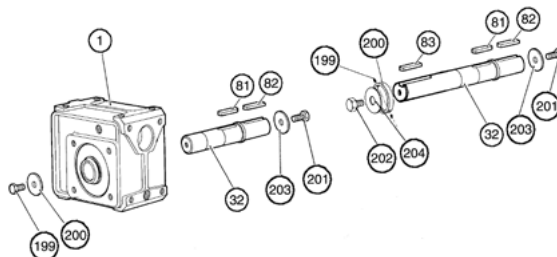
- 70°C: 25.000 hours - 90°C: 6.000 hours
- 80°C: 12.000 hours - 100°C: 3.000 hours
- Change the seals.

3 - EXPLODED VIEWS, PARTS LISTS

3.1 - Shaft kits Mb 3101, Mb 22 to 26

Output flange kit L or R

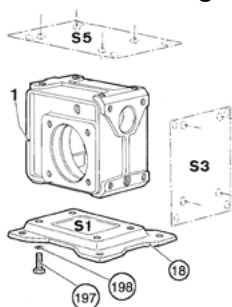
Ref.	Description	Qty
032	slow speed shaft	1
081	hub key	1
082	client key	1
199	shaft retaining screw	1
200	washer	1
201	shaft extension screw	1
203	washer	1



Output flange kit LR

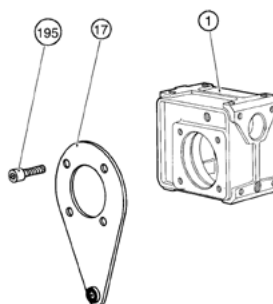
Ref.	Description	Qty
032	slow speed shaft	1
081	hub key	1
082-3	keys	2
199	stop screw	2
200	locking collar	1
201-2	shaft extension screw	2
203-4	washer	2

3.2 - Foot mounting kit for Mb 22 to 26



Ref.	Description	Qty
018	foot plate	1
197	fixing screws	4
198	washers	4

3.3 - Torque arm kit for Mb 31, Mb 22 to 25



Ref.	Description	Qty
017	torque arm	1
195	fixing screws	4

MOUNTING THE TORQUE ARM

The torque arm (17) should be fixed onto the frame using the 4 holes on the chosen side with cheese head screws (195) class 8.8 minimum (according to NFE 27-005).

These four screws should be locked with an anaerobic adhesive (Loctite 243 Removable Threadlocker for example) which should resist vibrations but still allow the screws to be removed if necessary.

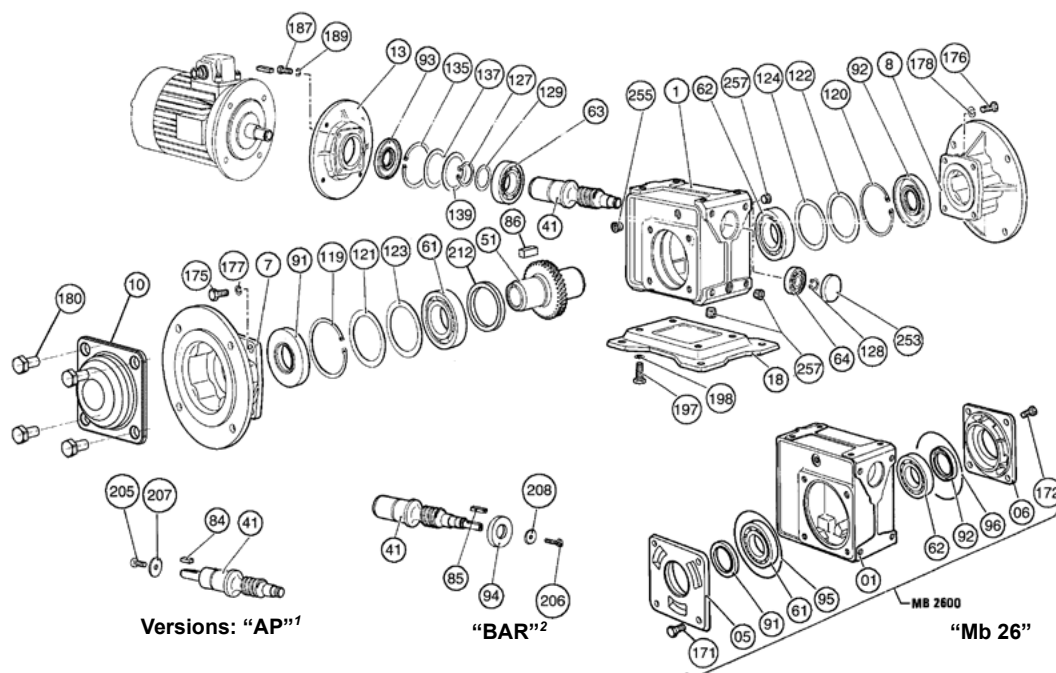
Tightening torque of fixing screws

All four screws should be tightened gradually and simultaneously.

Mb 3101, Mb 2000, Mb IA(W)

Drive systems

3.4 - Exploded view of Multibloc



3.5 - Parts list for Multibloc 3101, 22 to 26

Ref.	Description	Qty	Ref.	Description	Qty	Ref.	Description	Qty
001	frame	1	092	seal (right side)	1	135	I circlip	1
005/006	end shield for Mb 26	2	093	input seal	1	137	washer (Mb 25-26)	1
010	hollow shaft protective cover	1	095/096	O ring seal (Mb 26)	2	139	adjusting shims (Mb 25-26)	1 set
041	worm	1	119	I circlip (left side)	1	171/172	screws for 005/006 (Mb 25-26)	8
051	bronze wheel	1	120	I circlip (right side) (Mb 22 to 26)	1	180	cover fixing screw (010)	4
061	bearing (left side)	1	121	washer (left side) (Mb 22 to 26)	1	212	spacer (Mb 31)	1
062	bearing (right side)	1	122	washer (right side) (Mb 22 to 26)	1	253	blanking plug	1
063	input bearing	1	123/124	adjusting shims (Mb 22 to 26)	1	255	breather plug	1
064	DE bearing	1	127	E circlip (Mb 22 to 24)	1 or 2	257	oil plug	2 to 4
086	key (Mb 31)	1	128	E circlip (Mb 22 to 26)	1 or 2			
091	seal (left side)	1	129	cable gland washer (Mb 25-26)	1			

3.6 - Parts list for "AP"¹ Mb 22 to 26

Ref.	Description	Qty
041	AP screw	1
084	AP key	4
205	shaft extension screw	4
207	shaft extension washer	1

1. Input shaft

3.7 - Parts list for "BAR"² Mb 22 to 26

Ref.	Description	Qty
041	high speed shaft screw	1
085	high speed shaft key	4
094	seal	4
206	shaft extension screw	4
208	shaft extension washer	4

2. High speed shaft

3.8 - Output flange kit Mb 3101, Mb 22 to 25

Ref.	Description	Qty
007	flange (left side)	1
175	fixing screws	4
177	lock washer	4
008	flange (right side)	1
176	fixing screws	4
178	lock washer	4

3.9 - Input flange kit Mb 22 to 26

Ref.	Description	Qty
013	flange for motor	1
187	fixing screws	4
189	lock washer	4
209	motor fixing screws	4
210	washer	4

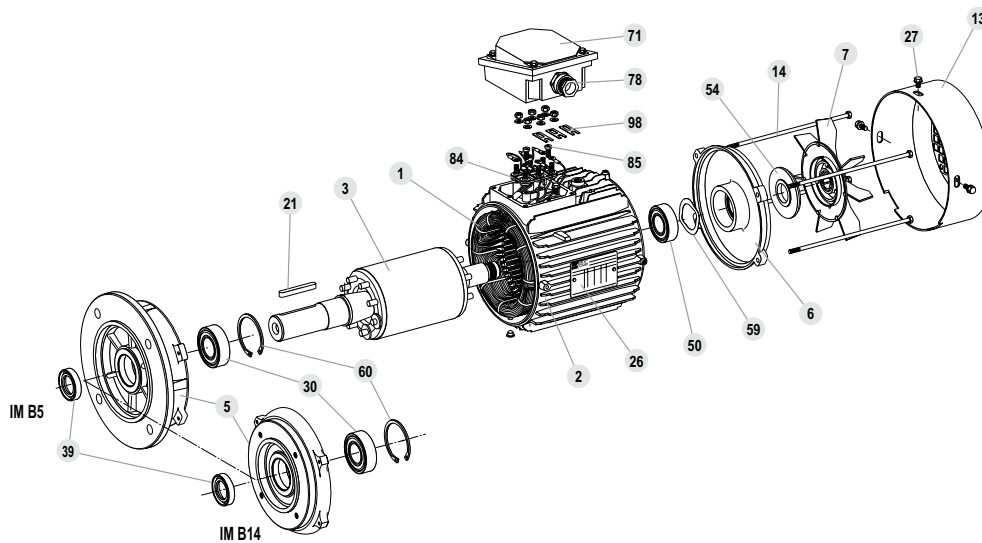
3.10 - Primary maintenance parts (bearing and seal)

Mb size	standard			AP		standard		
	061-062	063	064	063	064	093	094 (BAR)	091-092
2601	6213	3211*	6305	3211*	6305	AS 55x100x13	A 25x62x10	AS 65x85x13
2501	6018	3210*	6304 2RS	3210*	6304 2RS	AS 50x90x8	A 20x52x7	AS 90x140x13
2401	6212	6209 ZZ	6303 2RS	3209 2RS	6303 2RS	AS 45x85x8	A 17x47x7	AS 60x110x13
2301	6012	6207 ZZ	6203 2RS	3207 2RS	6203 2RS	AS 35x72x7	A 17x40x7	AS 60x95x10
2201	6208	6206 ZZ	6301 2RS	3206 2RS	6301 2RS	AS 30x62x7	A 12x37x7	AS 40x80x10
3101	-	-	-	-	-	-	-	-

*Without filling slot

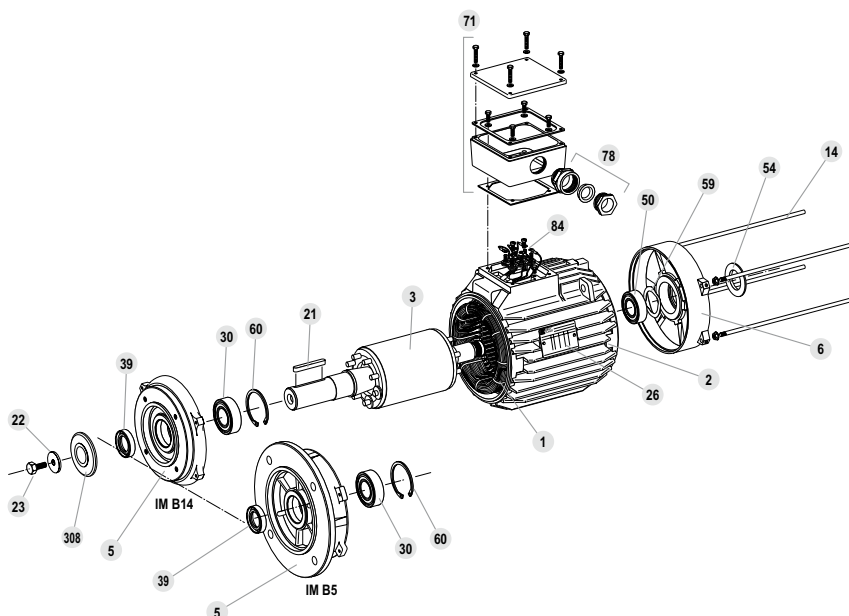
Mb 3101, Mb 2000, Mb IA(W) Drive systems

3.11 - LS(ES) motor: frame size 71 to 132



Ref.	Description	Qty	Ref.	Description	Qty	Ref.	Description	Qty
001	Wound stator	1	021	Shaft extension key	1	060	Circlip	1
002	Frame	1	026	Nameplate	1	071	Terminal box	1
003	Rotor	1	027	Fan cover screw	4	078	Cable gland	1
005	DE shield	1	030	Drive end bearing	1	084	Terminal block	1
006	NDE shield	1	039	Drive end seal	1	085	Set screw	1
007	Fan	1	050	Non drive end bearing	1	098	Connectors	1
013	Fan cover	1	054	Non drive end seal	1			
014	Tie rods	4	059	Preloading (wavy) washer	1			

3.12 - FLS(ES, IA, IAW) motor: frame size 80 to 132



Ref.	Description	Qty	Ref.	Description	Qty	Ref.	Description	Qty
001	Wound stator	1	022	Shaft extension washer	1	059	Preloading (wavy) washer	1
002	Frame	1	023	Shaft extension screw	1	060	Circlip	1
003	Rotor	1	026	Nameplate	1	071	Terminal box	1
005	Drive end shield (DE)	1	030	Drive end bearing	1	078	Cable gland	1
006	Non-drive end shield (NDE)	1	039	Drive end seal	1	084	Terminal block	1
014	Tie rods	4	050	Non drive end bearing	1	308	Labyrinth seal	1
021	Shaft extension key	1	054	Non drive end seal	1			

Note: The above illustration of parts does not necessarily show details, forms and volumes accurately.

Mb 3101, Mb 2000, Mb IA(W)

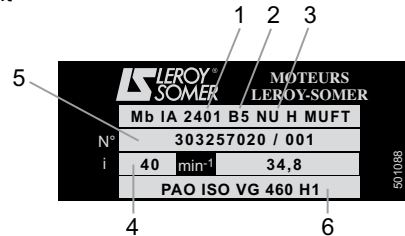
Drive systems

4 - Mb IA, IAW

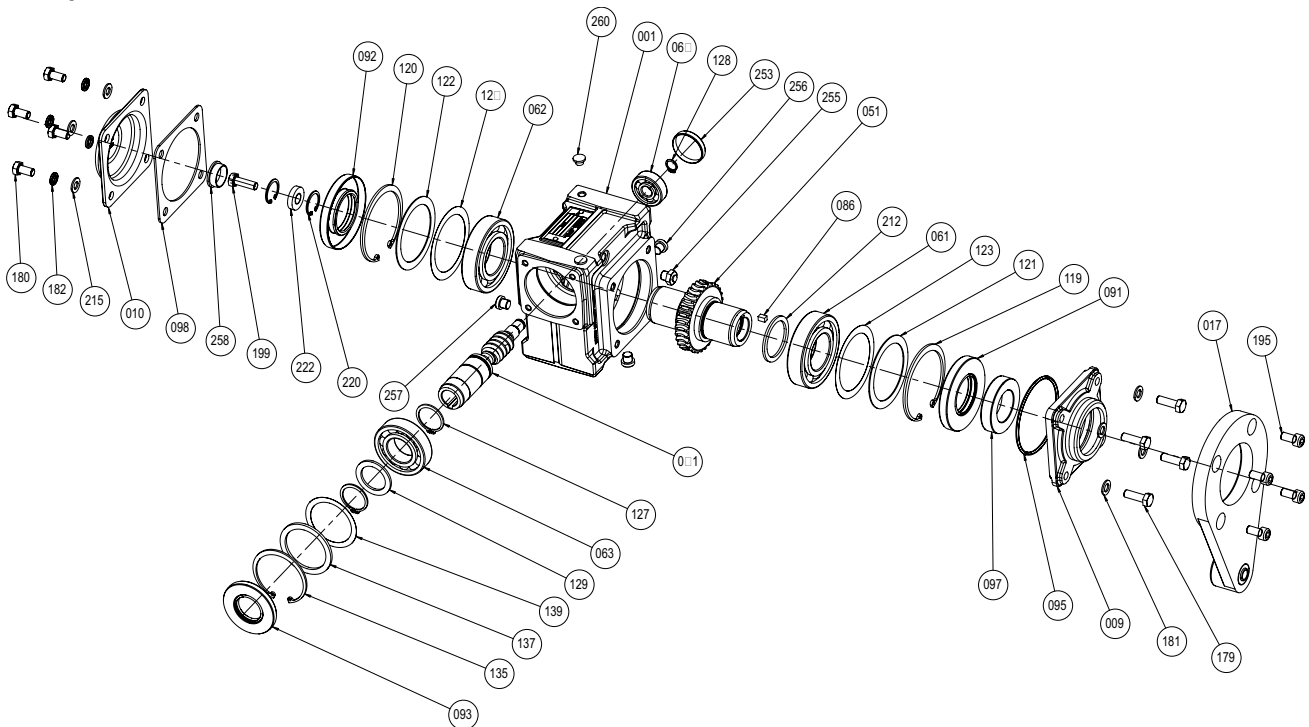
For applications in the food processing industry, we supply gearboxes conforming to the machinery directive 89/392/EEC and complying with the requirements of the USDA (United States Department of Agriculture) with the PAO H1 option: lubricant which can come into accidental contact with food. They are painted in white RAL 9010 and wrapped in specially designed packaging to withstand normal transport and storage conditions. Avoid any abrupt movements.

Identification :

- 1 - gearbox type: **Mb IA 2401**
- 2 - operating position: **B5**
- 3 - mounting form: **NU, H** hollow output shaft
- 4 - exact reduction: **40**
- 5 - manufacturing number: **303257020/001**
- 6 - lubricant



4.1 - Exploded view of Mb IA 31, Mb IA 22 to Mb IA 25



4.2 - Mb IA parts list

Ref.	Description	Qty	Ref.	Description	Qty	Ref.	Description	Qty	Ref.	Description	Qty
001	frame	1	064	DE bearing	1	121	washer (left side) (Mb IA 22 to 25)	1	137	washer (Mb IA 25)	1
010	hollow shaft protective cover	1	086	key (Mb IA 31)	1	122	washer (right side) (Mb IA 22 to 25)	1	139	adjusting shims (Mb IA 25)	1 set
041	worm	1	091	seal (left side)	1	123/124	adjusting shims (Mb IA 22 to 25)	8/6	180	st. steel cover fixing screw (010)	4
051	bronze wheel	1	092	seal (right side)	1	127	E circlip (Mb IA 22 to 24)	1 ou 2	212	spacer (Mb IA 31)	1
061	bearing (left side)	1	093	input seal	1	128	E circlip (Mb IA 22 to 25)	1 ou 2	253	blanking plug	1
062	bearing (right side)	1	119	I circlip (left side)	1	129	cable gland washer (Mb IA 25)	1	255	breather plug	1
063	input bearing	1	120	I circlip (right side) (Mb IA 22 to 25)	1	135	I circlip	1	256/257	oil plug	3

4.3 - Torque arm kit

Ref.	Description	Qty
017	torque arm	1
195	st. steel fixing screws	4

4.4 - Torque arm kit with sealing cartridge

Mb IA 31, Mb IA 22 to Mb IA 25

Ref.	Description	Qty
009	seal retainer	1
017	torque arm	1
095	O ring seal	1
097	cartridge seal	1
195	st. steel fixing screw	4

Mounting the torque arm: see ref. 2910 § 4.1.

4.5 - Sealing cartridge kit

Ref.	Description	Qty
009	seal retainer	1
095	O ring seal	1
097	cartridge seal	1
179	st. steel fixing screw	1
181	st. steel washer	4

Mb 3101, Mb 2000, Mb IA(W) Drive systems

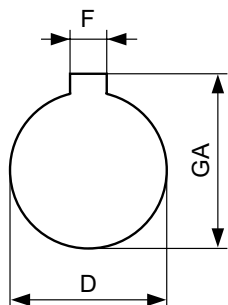
4.6 - Hollow shaft protection kit

Ref.	Description	Qty
010	hollow shaft protective cover	1
098	seal	1
180	st. steel cover fixing screw (010)	4
182	st. steel washers	4
199	st. steel screw	1
215	washer	4
220	circlip	2
222	washer	1
258	protective cap	1
999	tub of grease	1

Mounting the hollow shaft protection:

Place the seal (ref. 098) on the protective cover (ref. 010) and fix them on the frame using the 4 holes on the chosen side with the screws (ref. 180), not forgetting the washers (ref. 182), to avoid scratching the paint.

4.7 - Mounting the cylindrical hollow shaft with the shaft of the driven machine

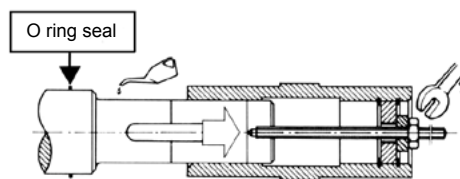


Type	Hollow output shaft			Client shaft						
	∅ DH7	F	GA	∅ Dg6	Length L		Ref. 097 ¹		Thread	
					Min.	Max.	∅JC	L1	O	Z
Mb 2601	50	14	53.8	50	-	-	-	-	-	-
Mb 2501	45	14	48.8	45	130	132	56 h8	25	M16	36
Mb 2401	35	10	38.3	35	105	109	45 h8	25	M12	28
Mb 2301	30	8	33.3	30	90	93	35 h8	21	M10	22
Mb 2201	25	8	28.3	25	85	90	35 h8	20	M10	22
Mb 3101	20	6	22.8	20	70	72	25 h8	17	M6	16

1. Cartridge seal ∅ (ref. 097)

- 1 - Check that the cylindrical shaft has been machined in accordance with standard NF - E 22 - 175, with a slide fit: g6, (the hub is: H7).
 - 2 - Check that the key is standard and the shaft is the minimum length L (see above table) tapped at the end (O.Z).
 - 3 - Before mounting, degrease all the parts, taking care not to splash any solvent on the seals.
- Use the supplied jar of grease (PAO compound) (ref. 999) to lubricate any parts in contact, to avoid corrosion.

Mounting:

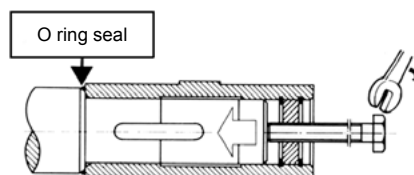


Mounting should be performed as described in the procedure above, without jolting.

The Mb IA gearbox is mounted on the machine shaft using a threaded rod, screwed into the shaft.

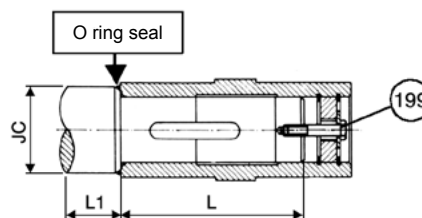
By screwing the nut down onto the washer (ref. 222), the shaft is smoothly inserted into the cylindrical hub of the Mb IA. Tighten with the screw (ref. 199).

Dismantling:

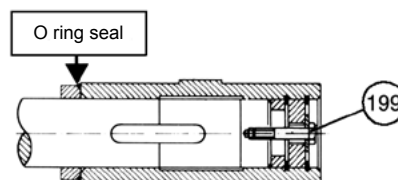


Use a spanner with a diameter corresponding to the washer thread (ref. 222) and turn the screw until the shaft comes out.

Fixing on a shouldered shaft:



Fixing on an untapped shaft:



Mb 3101, Mb 2000, Mb IA(W)

Drive systems